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**National Highway
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Washington, D.C. 20590

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DYNAMIC SCIENCE, INC.
In-Depth Accident Investigation

Case Number: DS96005

1996

Technical Report Documentation Page

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16. Abstract An unrestrained and out of position 3 year old female, located at the right front seating position, sustained fatal head and neck injuries from contact with the deploying front right passenger's air bag and air bag module flap. Vehicle 1, a 1995 Chevrolet Geo Metro LSi three-door, was being driven north, in the northbound travel lane at a speed estimated to have been between 48 and 56 km/h (30 and 35 mph) by the 15 year old female driver who was not restrained by the available three-point, manual lap/shoulder restraint. Occupant 2, a 15 year old female, was seated in the right front seating position unrestrained by the available three-point, manual lap/shoulder restraint. Occupant 3, a 3 year old female (the case occupant) was seated, unrestrained on the lap of Occupant 2 in the front right seating position. As Vehicle 1 was negotiating a left turning curve, the driver for unknown reasons drove off the east edge of the roadway. Upon departing the roadway, Vehicle 1 continued in a relatively straight northeasterly path across a residential lawn and a concrete driveway, and struck a wooden column supporting a porch roof. Vehicle 1 continued northeast approximately 2 m (7 ft) and the right front bumper corner impacted the brick veneer facade of a residence and came to final rest, facing northeast while maintaining contact with the house. The forces involved in this impact exceeded the manufacturer's supplemental restraint system threshold and both the driver's side and passenger's side air bags deployed. The investigating police officer reported that the driver of Vehicle 1 sustained non-incapacitating injuries of an unknown nature or severity. Occupant 2 sustained minor injuries consisting of a laceration; maximum AIS = AIS-1. Both the driver and Occupant 2 were transported by land to a local hospital for an unknown course of treatment. Occupant 3 (the case occupant) sustained major injuries consisting of fractures of the skull and spine, cortical contusions, subarachnoid hemorrhage, contusions of the spinal cord, heart and lung and numerous facial lacerations, contusions and abrasions; maximum AIS = AIS-5. She expired from crash injuries at the scene. At the time of the crash, Occupant 3 was 97 cm (39 in) in height and weighed 13 kg (29 lbs). Her fatal injuries were the result of direct contact with the deploying passenger's air bag and possibly contact with Occupant 2. Vehicle 1 sustained moderate front plane crash damage and was towed from the scene.			
17. Key Words Air bag, deployment, injury, child fatality, passenger.		18. Distribution Statement	
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TECHNICAL SUMMARY

Contractor: Dynamic Science, Inc.
Contract Number: DTNH22-94-d-27058
Case Number: DS96005

Case Selection: An unrestrained and out of position 3 year old female, located at the right front seating position, sustained fatal head and neck injuries from contact with the deploying front right passenger's air bag and air bag module flap.

This single vehicle crash occurred on a two-lane, undivided, asphalt paved, suburban roadway during the morning hours of a spring weekday in the state. At the time of the crash the weather was clear and the temperature was 13° C to 16° C (55° F to 60° F).

Vehicle 1, a 1995 Chevrolet Geo Metro LSi three-door, was being driven north, in the northbound travel lane at a speed estimated to have been between 48 and 56 km/h (30 and 35 mph) by the 15 year old female driver who was not restrained by the available three-point, manual lap/shoulder restraint. Occupant 2, a 15 year old female, was seated in the right front seating position unrestrained by the available three-point, manual lap/shoulder restraint. Occupant 3, a 3 year old female (the case occupant) was seated, unrestrained on the lap of Occupant 2 in the front right seating position.

As Vehicle 1 was negotiating a left turning curve, the driver for unknown reasons drove off the east edge of the roadway. Upon departing the roadway, Vehicle 1 continued in a relatively straight northeasterly path across a residential lawn and a concrete driveway and struck a wooden column supporting a porch roof (12FZLN1). Vehicle 1 continued northeast approximately 2 m (7 ft) and the right front bumper corner impacted the brick veneer facade of a residence (12FREE2) and came to final rest, facing northeast while maintaining contact with the house.

The forces involved in this impact exceeded the manufacturer's supplemental restraint system threshold and both the driver's side and passenger's side air bags deployed.

The Delta V for the house impact was computed, using SMASH 1.0, as 17 km/h (10 mph) using a CDC of 12 FREE2 and a PDOF of 000 degrees. The combined direct and induced damage width was 145 cm (57 in), and the maximum crush depth was 30 cm (12 in) at a point approximately 8 cm (3 in) left of C₆.

The investigating police officer reported that the driver of Vehicle 1 sustained non-incapacitating injuries of an unknown nature or severity. Occupant 2 sustained minor injuries consisting of a laceration; maximum AIS = AIS-1. Both the driver and Occupant 2 were transported by land to a local hospital for an unknown course of treatment.

Occupant 3 (the case occupant) sustained major injuries consisting of fractures of the skull and spine, cortical contusions, subarachnoid hemorrhage, contusions of the spinal cord, heart and lung and numerous facial lacerations, contusions and abrasions; maximum AIS = AIS-5. She expired from crash injuries at the scene.

At the time of the crash, Occupant 3 was 97 cm (39 in) in height and weighed 13 kg (29 lbs). Her fatal injuries were the result of direct contact with the deploying passenger's side air bag and possibly contact with Occupant 2.

Vehicle 1 sustained moderate front plane crash damage and was towed from the scene.

This research was supported by the National Highway Traffic Safety Administration (NHTSA), U.S. Department of Transportation. The opinions, findings, and recommendations contained herein are those of the authors, and do not necessarily represent those of NHTSA.

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

DYNAMIC SCIENCE, INC.
ACCIDENT INVESTIGATION
CASE NUMBER: DS96005

TABLE OF CONTENTS

Accident Data	1
Injury Severity	1
Ambience	1
Roadway	2
Traffic Controls	2
Vehicles	3
Vehicle Damage	4
Vehicle Velocity Estimates	4
Collision Sequence	5
Occupant	
Kinematics	6
Supplemental Restraint System	7
Scene Clearance	9
Safety Standards	9
Driver And Other Occupants	9
Injuries	11
Collision Measurements	15
Scene Diagram	16
Photo Index	17

Appendices:

- A. NASS Forms
- B. Police Accident Report
- C. Autopsy

Case Number:DS96005

ACCIDENT DATA:

Location:

Area/Type: Subrban/residential

Date/Time: Spring Weekday/ Morning

Accident Type: Car/Fixed Object - ran off road

INJURY SEVERITY:

Vehicle 1: Driver, reportedly sustained non-incapacitating injuries of an unknown nature or severity
R/F Occupant, AIS-1
Occupant 3 on lap of R\F Occupant, AIS-5 (fatal)

AMBIENCE:

Viewing Conditions: No viewing restriction

Cloud Cover: Clear

Precipitation: None

Temperature: 13° to 16° C (55° to 60° F)

Road Surface: Dry

ROADWAY:

VEHICLE 1

Type:	2-lane undivided
Width:	7.9 m (25.9 ft)
Traffic Density:	No other traffic
Median:	None
Edge:	15 cm (6 in) raised concrete curbs
Surface:	Asphalt
Reported Defects:	None
Co-efficient of Friction (est.):	0.75
Vertical Alignment:	5% downgrade
Horizontal Alignment:	Left turning curve R= 77.0 m (252.5 ft)

TRAFFIC CONTROLS:

VEHICLE 1

Signals:	None
Signs:	None
Speed Limit:	40 Km/h (25 Mph)
Markings:	None

VEHICLES:

VEHICLE 1

Description:	1995 Chevrolet Geo Metro LSi, 3-door
Odometer:	37,873 km (23,534 mi)
Engine:	I3 / 1.0 L
Vehicle Modifications:	None
Tire Condition:	Excellent, 25% to 30% tread wear with no abnormal tread wear patterns
Manual Restraints:	3-point, manual lap /shoulder restraints at the L/F, R/F, L/R and R/R seating positions, 2-point, manual lap restraints at the C/R seating position
Automatic Restraints:	Driver's and passenger's air bags
Reported Defects:	None
Cargo:	9 kg (20 lb) estimated
Windshield Damage:	None
Fleet:	Large car rental company
Tow Status:	Towed due to crash damage

VEHICLE DAMAGE:

Object Struck:	25 cm (10 in) hollow wood support column	Brick veneer building (house)
Event Number:	01	02
CDC:	12FZLN1	12FREE2
Maximum Crush:	<5 cm (2 in)	29.5 cm (11.6 in) @ 7.6 cm (3.0 in) left of C ₆

VEHICLE VELOCITY ESTIMATES:

Impact Speed:	16 to 24 km/h (10 to 15 mph)
Total Delta V:	17 km/h (10 mph)
Longitudinal Delta V:	-17 km/h (-10 mph)
Lateral Delta V:	0 km/h (0 mph)
Energy Dissipation:	18,219 joules (13,436 ft-lb)

Calculations based upon SMASH 1.0 - damage only

COLLISION SEQUENCE:

PRE-CRASH:

This single vehicle crash occurred during the morning hours of a spring weekday, on a two-lane asphalt paved, suburban/residential roadway in

The weather was clear, there were no viewing restrictions and the roadway was dry and free of defects. The posted speed limit was 40 km/h (25 mph) and no other traffic was present.

The north/south roadway measured 7.9 m (25.9 ft) in width, and is edged on the east and west by 15 cm (6 in) raised concrete curbs. There is a five percent downgrade for northbound traffic and a left turning curve with a radius of 77.0 m (252.5 ft). The estimated co-efficient of friction is 0.75. The critical speed of the curve was computed as 85.5 km/h (53.1 mph).

Vehicle 1, a 1995 Chevrolet Geo Metro LSi three-door, was being driven north, in the northbound travel lane at a speed estimated to have been between 48 and 56 km/h (30 and 35 mph) by the 15 year old female driver who was not restrained by the available three-point, manual lap/shoulder restraint. Occupant 2, a 15 year old female, was seated in the right front seating position unrestrained by the available three-point, manual lap/shoulder restraint. Occupant 3, a 3 year old female (the case occupant) was seated on the lap of Occupant 2 and was not restrained by either the three-point manual lap/shoulder restraint available at the right front seating position or the Century 2000 STE Deluxe convertible child safety seat found in the rear seating area of the vehicle during the on-site vehicle inspection (see Photos 53-55). The identifying numbers found on this safety seat were 4263 BJF 91/2-5.

The 15 year old driver of Vehicle 1 was unlicensed and had no known formal driver's training or driving experience. Vehicle 1, a rental vehicle, had been driven from the driver's driveway without the permission, or knowledge, of the driver's guardian.

For unknown reasons, Vehicle 1 departed the east edge of the roadway, traveled a straight northeasterly path across a sidewalk, a lawn, and a concrete driveway leaving rolling left and right front tire marks for a distance of approximately 18 m (60 ft) with no evidence of braking (see Photos 6-12).

Case Number:DS96005

At the north edge of the driveway, Vehicle 1 drove over several concrete lawn edgers as it entered a flower bed.

CRASH:

Vehicle 1 continued forward and struck a 25 cm (10 in) hollow wooden support column with the front bumper (12FZLN1 with a maximum crush <5 cm (2 in)). This impact sheared the column. Continuing northeast approximately 2 m (7 ft), the right front bumper corner impacted the brick veneer facade of a house (12FREE2).

The forces involved in this impact exceeded the manufacturer's supplemental restraint system threshold and both the driver's side and passenger's air bags deployed.

The Delta V for the house impact was computed, using SMASH 1.0, as 17 km/h (10 mph) using a CDC of 12 FREE2 and a PDOF of 000 degrees. The combined direct and induced damage width was 145 cm (57 in), and the maximum crush depth was 29.5 cm (11.6 in) at a point approximately 7.6 cm (3.0 in) left of C₆.

POST CRASH:

After impact, while maintaining contact with the house, Vehicle 1 rotated approximately 30 degrees clockwise coming to final rest, facing east, with the front wheels on the porch, the rear wheels in the flower bed and the front bumper against the house.

**OCCUPANT
KINEMATICS:**

Occupant 3 of Vehicle 1, a 3 year old female (the case occupant) was seated on the lap of Occupant 2, a 15 year old female, in the front right seating position. The seat at this position was a bucket seat with a folding back, and neither Occupant 2 nor 3 were restrained by the available three-point, manual lap/shoulder restraint. Both occupants were forward facing and sitting in upright seated positions. The manually adjustable right front seat had been adjusted to a point between the forward most and middle seat track positions and the adjustable seat back rest was in a normal, upright configuration.

At the time of the crash, Occupant 3 (the case occupant) was 97 cm (39 in) in height and weighed 13 kg (29 lb). Occupant 2 was 155 cm (61 in) in height and weighed 52 kg (115 lb).

As Vehicle 1 departed the roadway, both Occupants 2 and 3 appear to have

Case Number:DS96005

been somewhat out of position (leaning forward) and were possibly attempting to brace themselves with their hands on the right instrument panel.

As Vehicle 1 impacted the wooden column, both front right occupants likely pitched forward to some small degree. Occupant 3 may have contacted the right instrument panel at this time.

As the front of Vehicle 1 struck the side of the house, Occupant 3 (the case occupant) was projected further forward and slightly right as the passenger's air bag began its deployment. The air bag impacted the left frontal/parietal areas of Occupant 3's head causing her head/neck to "snap" upward and rearward as the deploying air bag impacted her face and upper torso (from her eyebrows to the underside of her chin and her upper chest). The deploying air bag magnified her head/neck "snap" and her upper body was project rearward into the torso of Occupant 2. Her lower body likely submarined into the lower instrument panel. The air bag contact, with loading from the rear by Occupant 2, resulted in the left frontal and temporal cortical contusions, a comminuted and depressed lateral skull fracture of the left frontal bone, an acute multi focal subarachnoid hemorrhage, a diastatic coronal suture skull fracture, extensive subgaleal hemorrhage of the left frontal to left anterior parietal areas of the scalp and abrasions of the left and right forehead. The air bag contact resulted in a C4 spinal fracture with spinal cord contusions from C3 to C5 and an atlanto-occipital subluxation with spinal cord compression at C1/C2. The air bag contact resulted in contusions of the right lung, heart and thymus. In addition, Occupant 3 sustained numerous lacerations, abrasions and contusions of the face from contact with the air bag.

The only apparent injury sustained by Occupant 2 was a laceration of the right hand as it impacted the right side exterior rear view mirror upon impact with the house.

**SUPPLEMENTAL
RESTRAINT
SYSTEM:**

Vehicle 1, a 1995 Chevrolet Geo Metro LSi three-door, was equipped with driver's and passenger's air bags that deployed during event 2 of a two event crash. An inspection of the vehicle's SRS revealed no apparent malfunction, or damage to the wiring, sensors or control module.

Driver's Air Bag: The air bag was marked with a bar code tag with the

following numbers:

The air bag was not damaged during the crash sequence and did not yield evidence of occupant contact. The bag measured approximately 60 cm (24 in) in diameter in its deflated, post-crash state. The air bag was vented by two vent ports located on the back side of the bag (away from the driver). The 4.0 cm (1.6 in) diameter ports were located at the 10:30 and 1:30 o'clock positions and the air bag was tethered by two tether straps.

At the time of the on-site inspection which occurred 23 hours post-crash, and within 2 hours of notification, the bag contained eight horizontal and four vertical fold creases as oriented to the top of the steering wheel.

Passenger's air bag: There were no identifying letters, or numbers, on the air bag or its module, and the air bag was not damaged during the crash sequence. However, there was evidence of occupant contact on both the air bag and the air bag module flap as follows:

Module Flap: The module flap measures 35.0 cm x 15.5 cm (13.8 in x 6.1 in) and is located 5 cm (2 in) rearward of the front edge of the right instrument panel (the edge nearest the right front seating position). The two contact points were:

- 1) a 2.5 cm (1.0 in) abrasion at 14.0 cm (5.5 in) right of the left flap edge and 5.5 cm (2.2 in) forward of the leading edge (away from the passenger).
- 2) a 3.0 cm (1.2 in) abrasion at 19.0 cm (7.5 in) right of the left flap edge and 7.5 cm (3.0 in) forward of the leading edge (away from the passenger). See Photos 36, 54 and 55.

Airbag: Beginning near the top of the air bag face, just left of center, and extending downward 36.0 cm (14.2 in) was a skin/hair/body fluid transfer that measured 13.0 cm (5.1 in) in width (see Photos 39 and 42-44).

The air bag measured approximately 48 cm x 72 cm (19 in x 28 in) in its

Case Number:DS96005

deflated, post-crash state. The air bag was naturally aspirated (no vent ports) and was not tethered. Due to post-crash storage, the bag's fold creases had been obliterated.

SCENE

CLEARANCE:

The driver of Vehicle 1 was reported by police to have sustained non-incapacitating injuries of an unknown nature or severity. Occupant 2 sustained minor injuries consisting of a laceration; maximum AIS = AIS-1. The driver and Occupant 2 were transported by land to a local hospital for an unknown course of treatment.

Occupant 3 (the case occupant) sustained major injuries consisting of brain contusions and hemorrhage, spinal cord contusions, fractures, lacerations, contusions and abrasions; maximum AIS = AIS-5. Occupant 3 expired at the scene due to injuries sustained in this crash. The medical examiner reported the cause of death to be head and neck injuries.

Vehicle 1 sustained moderate front plane, top and undercarriage crash damage and was towed from the scene. The house and porch sustained minor non-structural damage.

SAFETY

STANDARDS:

There were no violations of the Federal Motor Vehicle Safety Standards noted during the on-site inspection of Vehicle 1.

DRIVER AND OTHER OCCUPANTS:

VEHICLE 1

	DRIVER	Occupant 2	Occupant 3 (the case occupant)
Age/Sex:	15/female	15/female	3/female
Seated Position:	Left Front	Right front	Right front on lap of Occupant 2
Seat Type:	Bucket w/folding back	Bucket w/folding back	N/A
Height:	155 cm (61 in)	155 cm (61 in)	97 cm (39 in)
Weight:	45 kgs (100 lbs)	52 kgs (115 lbs)	13 kgs (29 lbs)
Occupation:	Student	Student	Pre-school child
Pre-existing Medical Condition:	None Known	None Known	None Known
Alcohol/Drug Involvement:	None	None	None
Driving Experience:	None Known	N/A	N/A
Body Posture:	Normal, upright seated position	Upright seated position holding Occupant 3 on lap	Upright seated position, forward facing, on lap of Occupant 2
Hand Position:	Both hands on steering wheel rim at unknown "o'clock" positions	Unknown	Unknown
Foot Position:	L. foot on floor/toe pan, right foot unknown	Both feet on floor/toe pan	Unknown
Manual Restraint Usage:	None	None	None
Supplement Restraint Usage:	Driver's air bag deployed	Passenger's air bag deployed	Passenger's air bag deployed
Additional Occupants:	Two	One	None

INJURIES:**Vehicle 1**

	INJURY	AIS/OIC Code	ICD-9	Source
DRIVER	Reported to have sustained non-incapacitating injuries of an unknown nature or severity.			
Occupant 2:	Laceration, R. hand	790600.1,1	882.0	Right side, exterior rear view mirror.
Occupant 3: (case occupant)	Contusion, Cortical - L. frontal and temporal	140618.5,2	800.16	Front right passenger's air bag
	Fracture, skull, comminuted and depressed - L. lateral frontal bone	150404.3,2	800.16	Front right passenger's air bag
	Fracture, skull, comminuted and depressed - Mid-right frontal bone	150404.3,1	800.16	Front right passenger's air bag
	Hemorrhage, subarachnoid, acute, multifocal	140466.3,6	800.26	Front right passenger's air bag
	Fracture w/dislocation C4 with C3-C5 spinal cord contusions	640208.3,6	806.02	Front right passenger's air bag
	Dislocation, subluxation - atlanto-occipital joint w/spinal cord compression C1/C2	640206.3,6	839.01	Front right passenger's air bag
	Contusion, R. lung	441402.3,1	861.21	Front right passenger's air bag
	Contusion, heart - pericardium	441004.3,4	861.01	Front right passenger's air bag
	Fracture, skull - diastatic, coronal suture	150402.2,5	800.16	Front right passenger's air bag

INJURY	AIS/OIC Code	ICD-9	Source
Fracture, skull - R. parietal. linear extending posteriorly	150404.2,1	800.16	Front right passenger's air bag
Contusion, thymus	442299.7,9	862.29	Front right passenger's air bag
Hemorrhage, scalp (extensive) subgaleal L. frontal to L. anterior parietal	190402.1,2	920	Front right passenger's air bag
Abrasion, R. forehead, above eyebrow - 3.8 cm x 1.0 cm	290202.1,7	910.0	Front right passenger's air bag
Abrasion, L. forehead, above eyebrow - 5.7 cm x 1.5 cm	290202.1,7	910.0	Front right passenger's air bag
Hematoma, R. conjunctiva	240416.1,1	918.2	Front right passenger's air bag
Hematoma, L. conjunctiva	240416.1,2	918.2	Front right passenger's air bag
Abrasion, R. orbit - lateral aspect	297202.1,1	918.0	Front right passenger's air bag
Abrasion, nose - tip and around nostrils 1.9 cm x 1.0 cm	290202.1,4	910.0	Front right passenger's air bag
Abrasion, upper lip	290202.1,8	910.0	Front right passenger's air bag
Abrasion, lower lip	290202.1,8	910.0	Front right passenger's air bag
Laceration, lower lip - midline	290602.1,8	873.43	Front right passenger's air bag
Laceration (tear), upper frenulum	243099.1,8	873.69	Front right passenger's air bag

INJURY	AIS/OIC Code	ICD-9	Source
Laceration (tear), lower frenulum	243099.1,8	873.69	Front right passenger's air bag
Abrasion, chin 9.5 cm x 4.4 cm and 1.3 cm L of midline to 2.5 cm R of midline	290202.1,8	910.0	Front right passenger's air bag
Abrasion, R cheek	290202.1,1	910.0	Front right passenger's air bag
Abrasion, L. cheek	290202.1,2	910.0	Front right passenger's air bag
Abrasion, R. ear, lateral posterior 5.1 cm x 1.0 cm	290202.1,1	910.0	Front right passenger's air bag
Abrasion, R. ear, anterior superior 6 mm x 3 mm	290202.1,1	910.0	Front right passenger's air bag
Abrasion, R. ear, lobe 6 mm x 1 mm	290202.1,1	910.0	Front right passenger's air bag

List of Abbreviations

FT	Feet
IN	Inches
AME	After Market Equipment
AIS	Abbreviated Injury Scale
CCW	Counterclockwise
CDC	Collision Deformation Classification
C/F	Center Front
CG	Center of Gravity
CM	Centimeter
C/R	Center Rear
CW	Clockwise
E, EB	East, Eastbound
FRP	Final Rest Position
KG	Kilogram
KM/H	Kilometers per Hour
L/F	Left Front
L/R	Left Rear
M	Meter
N, NB	North, Northbound
NE	Northeast
NW	Northwest
OEM	Original Equipment Manufacture
PDOF	Principal Direction Of Force
POI	Point of Impact
R	Radius of Curvature
R/F	Right Front
RL	Reference Line
RP	Reference Point
R/R	Right Rear
S, SB	South, Southbound
SE	Southeast
SW	Southwest
V1	Vehicle 1
W, WB	West, Westbound

COLLISION MEASUREMENTS

Case Number: DS96005

Reference Point: S curbline E/W roadway and W curbline N/S roadway - extended

Reference Line: W curbline of N/S roadway

DATA POINT	DISTANCE AND DIRECTION FROM REFERENCE POINT	DISTANCE AND DIRECTION FROM REFERENCE LINE
W curb N/S roadway	24.4 m (80.0 ft) S	0
E curb N/S roadway	24.4 m (80.0 ft) S	7.9 m (25.9 ft) E
Vehicle 1 departs roadway	10.1 m (33.2 ft) S	7.9 m (25.9 ft) E
POI # 1, wood column	4.5 m (14.8 ft) N	20.8 m (68.1 ft) E
POI # 2 and FRP	5.3 m (17.4 ft) N	22.8 m (74.7 ft) E

SCENE DIAGRAM

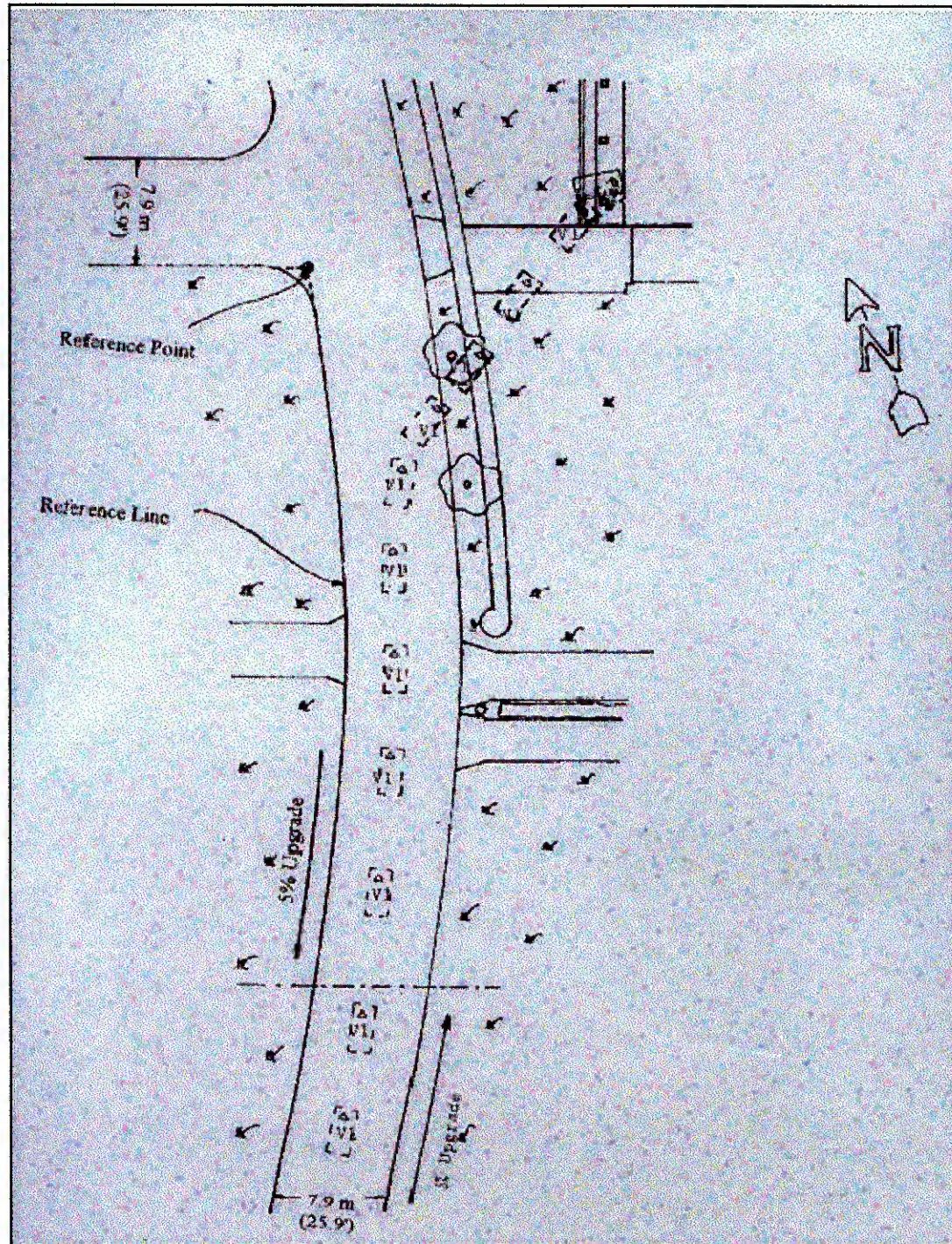


PHOTO INDEX

Case Number: DS96005

PHOTO NO.	VEHICLE NO.	ORIENTATION	SUBJECT MATTER
1	Vehicle 1	SW	Approach path, Vehicle 1
2-5	Vehicle 1	NE	Travel path, Vehicle 1
6	Vehicle 1	NE	Vehicle 1 departs roadway
7-13	Vehicle 1	NE	Travel path, Vehicle 1
14-15	Vehicle 1	NE	POI 1 Vehicle 1
16-17	Vehicle 1	NE	POI # 2 and FRP, Vehicle 1
18-20	Vehicle 1	SW	Reverse travel path, Vehicle 1
21-28	Vehicle 1	CCW	Exterior views, Vehicle 1
29-56	Vehicle 1	---	Interior views, Vehicle 1 Photos: 42-45 - Passenger's side air bag 46 - R. "A" pillar 47 - R. lower quadrant windshield 49 - Passenger's side air bag module flap - leading edge 51-52 - Glove box door 53-56 - Child's safety seat, found in back seat

AB05-001



AB05-002





AB05-005



AB05-006















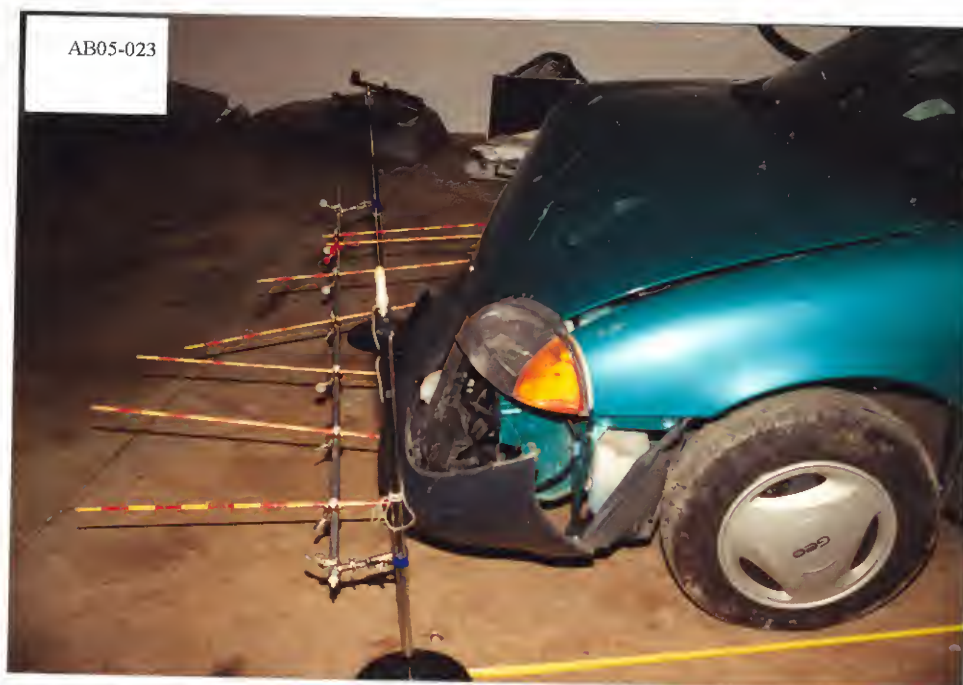


AB05-021

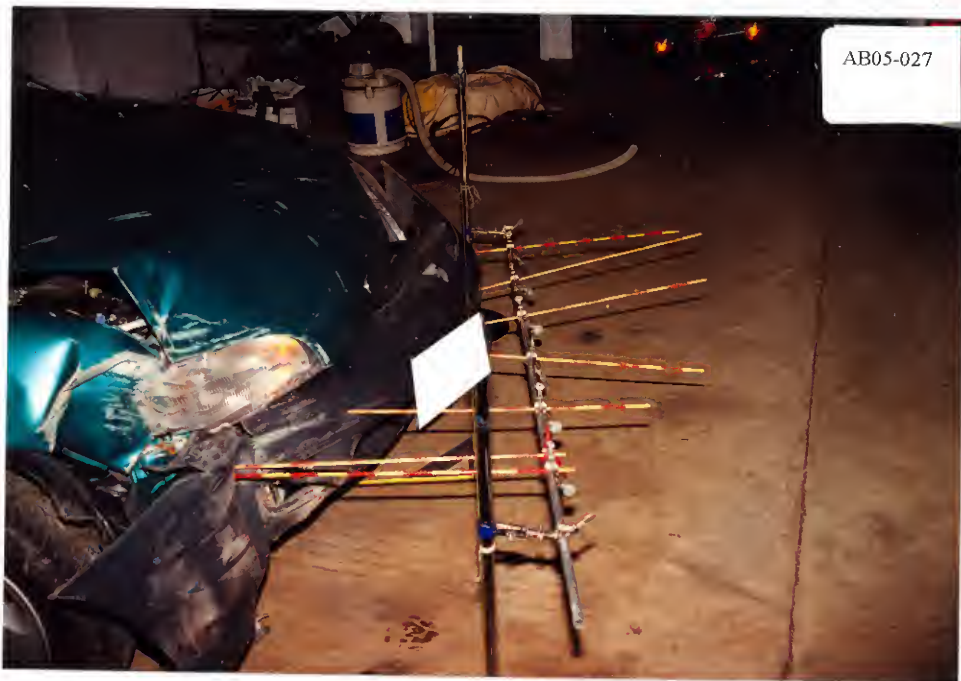


AB05-022







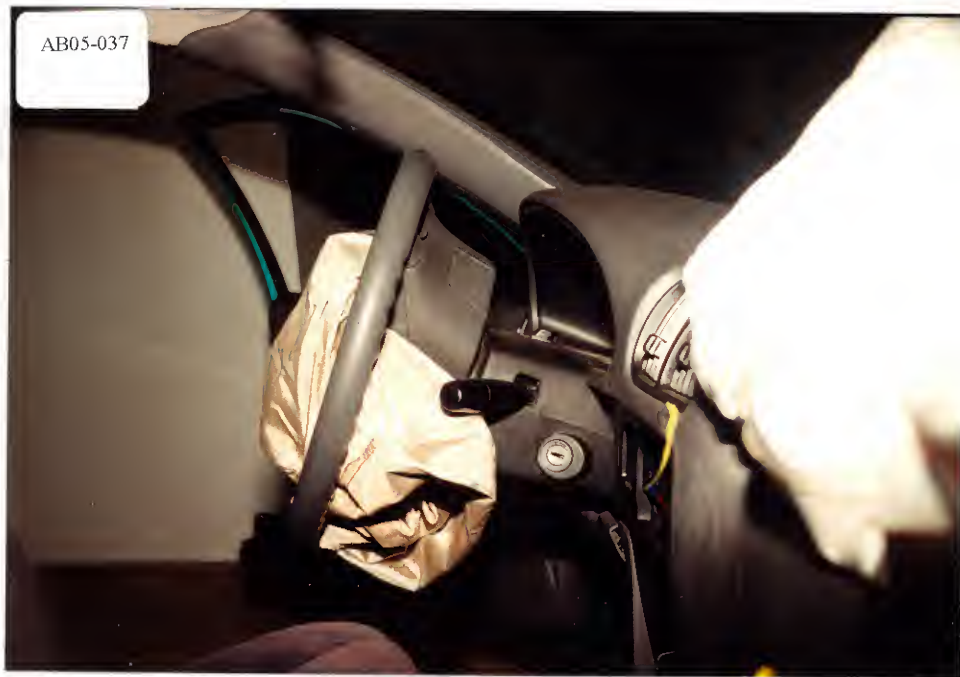


























AB05-053



AB05-054





AB05-056



U.S. Department of Transportation

National Highway Traffic Safety
Administration

SMASH PROGRAM SUMMARY

(All Measurements in Metric)

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

Identifying Title

Primary
Sampling Unit

DSI-96-AB-005

Case No.-Stratum

Accident Event
Sequence No.

01

Date (Month, day, year) of Run

1/1/1

GENERAL INFORMATION

VEHICLE 1

NASS Vehicle Number 01
 Year 1995
 Make CHEVROLET
 Model GEO METRO LSi
 Body Style 3H
 CDC 12FREE
 PDOF $\pm 000^\circ$
 Heading Angle $\pm 090^\circ$

VEHICLE 2

NASS Vehicle Number _____
 Year _____
 Make _____
 Model _____
 Body Style _____
 CDC BARRIER
 PDOF $\pm _____\circ$
 Heading Angle $\pm _____\circ$

VEHICLE SPECIFICATIONS

VEHICLE 1

Wheelbase 237 cm
 Overall Length 380 cm
 Overall Width 159 cm
 Weight 824 + 112 + 09 = 0941 kg
 Curb Occupant(s) Cargo
 Engine Displacement 1.0 L
 Drive System FWD
 Size 1
 Stiffness 1

VEHICLE 2

Wheelbase _____ cm
 Overall Length _____ cm
 Overall Width _____ cm
 Weight _____ kg
 Curb Occupant(s) Cargo
 Engine Displacement _____ L
 Drive System _____
 Size _____
 Stiffness _____

DAMAGE INFORMATION

VEHICLE 1

Damage known? Y
 Damage Length 145 cm
 Damage Offset 0053 cm
 Crush Depth:
 C1 000 cm
 C2 000 cm
 C3 000 cm
 C4 004 cm
 C5 020 cm
 C6 029 cm

VEHICLE 2

Damage known? _____
 Damage Length _____ cm
 Damage Offset $\pm _____\text{cm}$
 Crush Depth:
 C1 _____ cm
 C2 _____ cm
 C3 _____ cm
 C4 _____ cm
 C5 _____ cm
 C6 _____ cm

SCENE INFORMATION

Rest and Impact Positions ☒ No ☐ Yes

	VEHICLE 1			VEHICLE 2	
Rest	X	_____ . _____ m	Rest	X	_____ . _____ m
Position	Y	_____ . _____ m	Position	Y	_____ . _____ m
	PSI	_____ °		PSI	_____ °
Impact	X	_____ . _____ m	Impact	X	_____ . _____ m
Position	Y	_____ . _____ m	Position	Y	_____ . _____ m
	PSI	_____ °		PSI	_____ °
Slip Angle (-180 to +180)		_____ °	Slip Angle (-180 to +180)		_____ °

VEHICLE MOTION

Sustained Contact ☒ No ☐ Yes

VEHICLE 1

Vehicle Rotation		<input type="checkbox"/> No	<input type="checkbox"/> Yes
Rotation Stop Before Rest		<input type="checkbox"/> No	<input type="checkbox"/> Yes
End of Rotation	X	_____ . _____ m	
Position	Y	_____ . _____ m	
	PSI	_____ °	
Curved Path <input type="checkbox"/> No <input type="checkbox"/> Yes			
Point on Path			
X	_____ . _____ m	Y	_____ . _____ m
Rotation Direction <input type="checkbox"/> None <input type="checkbox"/> CW <input type="checkbox"/> CCW			
Rotation > 360° <input type="checkbox"/> No <input type="checkbox"/> Yes			

Sustained Contact ☒ No ☐ Yes

VEHICLE 2

Vehicle Rotation		<input type="checkbox"/> No	<input type="checkbox"/> Yes
Rotation Stop Before Rest		<input type="checkbox"/> No	<input type="checkbox"/> Yes
End of Rotation	X	_____ . _____ m	
Position	Y	_____ . _____ m	
	PSI	_____ °	
Curved Path <input type="checkbox"/> No <input type="checkbox"/> Yes			
Point on Path			
X	_____ . _____ m	Y	_____ . _____ m
Rotation Direction <input type="checkbox"/> None <input type="checkbox"/> CW <input type="checkbox"/> CCW			
Rotation > 360° <input type="checkbox"/> No <input type="checkbox"/> Yes			

FRICTION INFORMATION

Coefficient of Friction _____
Rolling Resistance Option _____

Vehicle 1 Rolling Resistance

 LF _____ RF _____
 LR _____ RR _____

Vehicle 2 Rolling Resistance

 LF _____ RF _____
 LR _____ RR _____
IF THIS COLLISION IMPACT WAS WITH A CDS VEHICLE *NOT IN TRANSPORT*, FILL IN THE INFORMATION BELOW:
 Model Year: _____
 Make: _____
 Model: _____
 VIN: _____

The Weight, CDC, Scene Data and Damage Information for this vehicle should be recorded above.

Complete and ATTACH the appropriate damage sketch and dimensions to the form.

Summary of Results Using Damage

DSI-96-AB-005

Speed Change
(Damage)

Vehicle #1

Total 17 km/h (10 mph)
 Longitudinal -17 km/h (-10 mph)
 Latitudinal 0 km/h (0 mph)
 PDOF Angle 0 x
 Energy Dissipated = 18219 Joules (13436 Ft-Lb)
 Barrier Equivalent Speed = 16.7 km/h (10.4 mph)
 Calculated using size and stiffness categories.

Vehicle #2

Total 0 km/h (0 mph)
 Longitudinal 0 km/h (0 mph)
 Latitudinal 0 km/h (0 mph)
 PDOF Angle 0 x
 Energy Dissipated = 0 Joules (0 Ft-Lb)
 Barrier Equivalent Speed = 0.0 km/h (0.0 mph)
 Calculated using size and stiffness categories.

General Information

Vehicle #1

Vehicle #2

Year 1995
 Make CHEVROLET
 Model GEO METRO LSi

CDC	12FREE2	BARRIER
Side Damaged	F	
PDof Angle	0 x	0 x
Heading Angle	90 x	0 x

Calculation method: Size and Stiffness Size and Stiffness

Size Category	1	11
Stiffness Category	1	11
Vehicle Weight	941 kgs (2075 lbs)	453592 kgs (999999 lbs)

Damage Information

Vehicle #1

Vehicle #2

Vehicle Damage Known

Yes

Yes

Crush Length	145.0 cm (57 in)	0.0 cm (0 in)
C1	0.0 cm (0 in)	0.0 cm (0 in)
C2	0.0 cm (0 in)	0.0 cm (0 in)
C3	0.0 cm (0 in)	0.0 cm (0 in)
C4	4.0 cm (2 in)	0.0 cm (0 in)
C5	20.0 cm (8 in)	0.0 cm (0 in)
C6	29.0 cm (11 in)	0.0 cm (0 in)
D	53.0 cm (21 in)	0.0 cm (0 in)
D'	100.8 cm (40 in)	0.0 cm (0 in)

Vehicle Dimensions

Vehicle #1

Vehicle #2

Length	380.0 cm (150 in)	0.0 cm (0 in)
Width	159.0 cm (63 in)	0.0 cm (0 in)
Wheelbase	237.0 cm (93 in)	254.0 cm (100 in)
Weight	941 kgs (2075 lbs)	453592 kgs (999999 lbs)
CG to Front of Veh	193.0 cm (76 in)	127.0 cm (50 in)
Engine Displacement	1.0 liters	0.0 liters
Moment of Inertia	122760 kgs (10866 lbs)	29375740821 kgs (2600101632 l
s)		
Vehicle Mass	941 kgs (5.4 lb-s ² /in)	453515 kgs (2600.1 lb-s ² /in)

Motor Vehicle Accident Report

PAGE OF 11		ACCIDENT DATE 19 6		ACCIDENT TIME 01		REPORT TYPE <input checked="" type="checkbox"/> FATAL <input type="checkbox"/> INJURY <input type="checkbox"/> PDO <input type="checkbox"/> HIT & RUN <input type="checkbox"/> NON-TRAFFIC		RESEARCH		LOCAL CASE NUMBER		LOCAL CODES		PHOTOS <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES	
INVESTIGATING OFFICER ID		AGENCY AND AREA		SUPERVISING OFFICER ID		REVIEWER ID #		CODE - AND - NAME OF MUNICIPALITY		COUNTY					
CHAR 04		ROAD NAME		IN LANE 01		TRAT SIG NO 20 YES		ON RAMP NO 21 YES		Ramp Number (Direction) 1 N-W 2 W-N 3 E-N 4 N-E 5 S-E 6 E-S 7 W-S 8 S-W 9 Other		0 Not Ramp		IN INTERSECTION NO 22 YES	
COND 1		INTERESTING ROAD NAME or Log Mile Reference Manual description		MILE PT 000.04		DIR 3		Dist. of Acc to INT. Rte. Ref. S. D. 20							
COND 2		Show & Label, Road, Traffic Units, the Travel Direction consistent with the Log Mile Reference Manual, and Movement of Traffic Units.		NORTH											
COND 3		Investigation reveals that vehicle #1, traveling east on [redacted], failed to remain right and struck the left curb. The vehicle then veered to the right, struck the right curb, traveled through a yard, struck a support pillar and struck a house. Impact speed with the house is about 20 to 25 MPH. The child was seated on the lap of an unrestrained front passenger.													
COND 4		Home owner: [redacted]													
COND 5		NAME (First, Middle, Last)		SEX 45		UNIT # 43		NAME (First, Middle, Last)		SEX 45					
COND 6		ADDRESS (No., Street, City, State, Zip)		TEL <input type="checkbox"/> Work <input type="checkbox"/> Res		TYPE OF UNIT		ADDRESS (No., Street, City, State, Zip)		TEL <input type="checkbox"/> Work <input type="checkbox"/> Res		TYPE OF UNIT			
COND 7		CONDITION 51		SUBST 52		TEST 53		RESULT 54		FOR PEDS ONLY 55		TYPE 56		LOCAL 57	
COND 8		SAF. EQU 61		EQ. PROB 62		EJECT 63		CITATION NUMBER(S) 64		FAULT <input type="checkbox"/> NO 65 <input type="checkbox"/> YES		SPEED LIMIT 60		SAF. EQU 61	
COND 9		DRIVER'S LICENSE NUMBER		STATE 67		CLASS 69		GOING 66		DRIVER'S LICENSE NUMBER		STATE 67		CLASS 69	
COND 10		DR DATE OF BIRTH 71		IRREGULAR CONDITION 72		HM SPILL 73		HAZ MAT NUMBER 74		CONTINUED 70		DR DATE OF BIRTH 71		IRREGULAR CONDITION 72	
COND 11		COMMER. VEHICLE ONLY 75		U.S. DOT NUMBER 76		I.C. NUMBER 77		BODY TY 78		CDU <input type="checkbox"/> NO 79 <input type="checkbox"/> YES		COMMER. VEHICLE ONLY 75		U.S. DOT NUMBER 76	
COND 12		OWNER OR CARRIER NAME (Write "SAME" if Driver)		TEL <input type="checkbox"/> Work <input type="checkbox"/> Res		R1		CONTINUED 80		OWNER OR CARRIER NAME (Write "SAME" if Driver)		TEL <input type="checkbox"/> Work <input type="checkbox"/> Res		R1	
COND 13		OWNER / CARRIER ADDRESS		R3		CONTINUED 83		OWNER / CARRIER ADDRESS		R3		CONTINUED 83			
COND 14		YEAR & MAKE OF VEHICLE		MODEL 85		TOWED VEH (S) 84		YEAR & MAKE OF VEHICLE		MODEL 85		TOWED VEH (S) 84			
COND 15		EXP. YR & REGISTR. # STATE		AREAS DAMAGED 89		INSURER 90		EXP. YR & REGISTR. # STATE		AREAS DAMAGED 89		INSURER 90			
COND 16		VEHICLE ID NUMBER		POLICY NUMBER 92		VEHICLE ID NUMBER		POLICY NUMBER 92		VEHICLE ID NUMBER		POLICY NUMBER 92			
COND 17		VEHICLE REMOVED BY		VEHICLE REMOVED TO		VEHICLE REMOVED BY		VEHICLE REMOVED TO		VEHICLE REMOVED BY		VEHICLE REMOVED TO			
COND 18		TRAFFIC POSITION		CODE all injured & uninjured PASSENGERS below. Use "N" for witness in TRAF POSITION and SEAT columns. WRITE NAME & ADDRESS of Injured Passengers and Witnesses.		Witness telephone #		SEX		AGE		SAFETY EQUIP		INJUR SEVER	
COND 19		1 03		[redacted]		99		0 2		0 15		0 10		0 10	
COND 20		1 03		[redacted]				0 2		0 3		0 1		0 5	
COND 21				[redacted]											
COND 22				[redacted]											
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COND 26				[redacted]											
COND 27				[redacted]											
COND 28				[redacted]											
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COND 108				[redacted]											
COND 109				[redacted]											
COND 110				[redacted]											

CASE NO. [REDACTED]

POST MORTEM EXAMINATION REPORT
OFFICE OF THE CHIEF MEDICAL EXAMINER

AUTOPSY ☒ INSPECTION [REDACTED]

JURISDICTION [REDACTED] DME/FI [REDACTED]
Jurisdiction of Death/Police Investigating

NAME OF DECEASED [REDACTED]

RESIDENCE OF DECEASED [REDACTED]

AGE 3 SEX female RACE black

INCIDENT OCCURRED-DATE [REDACTED] 96 TIME Noon

ADDRESS [REDACTED]
OCME NOTIFIED:

DATE [REDACTED] 96 TIME [REDACTED] BY WHOM [REDACTED]

TRANSPORTED TO OCME BY [REDACTED]

PRONOUNCED DEAD - DATE [REDACTED] 96 TIME 12:06p

ADDRESS/INSTITUTION [REDACTED]

AUTOPSY/INSPECTION-DATE [REDACTED] TIME [REDACTED]

PERFORMED BY [REDACTED]

CAUSE OF DEATH a. Head and neck injuries
b. _____
c. _____

_____	Natural
<input checked="" type="checkbox"/>	Accident
_____	Suicide
_____	Homicide
_____	Undetermined

Other significant conditions:

HOW DID INJURY OCCUR passenger of auto/fixed object collision

TOXICOLOGY:

BLOOD (HEART): Alcohol - negative
Drug test - negative

NAME: [REDACTED]	POST MORTEM EXAMINATION REPORT OFFICE OF THE CHIEF MEDICAL EXAMINER STATE OF	PAGE 2
CASE NUMBER: [REDACTED]		

An autopsy was performed on the body of [REDACTED] at the Office of the Chief Medical Examiner for the State of [REDACTED] on the [REDACTED] day of [REDACTED] 1996.

EXTERNAL EXAMINATION

The body was that of a well-developed, well-nourished, prepubescent, black female received unclad. The body weighed 29 pounds, was 3'2" in height and appeared compatible with the reported age of 3 years. The body was cold. Rigor was present and fixed to an equal degree in all extremities. Lividity was present and fixed on the posterior surface of the body, except in areas exposed to pressure. The scalp hair was long, black and curly. The irides were brown. The corneae were slightly cloudy. The conjunctivae were slightly congested with a few petechia present. The sclerae were white. The external auditory canals, external nares and oral cavity were free of foreign material and abnormal secretions. Injuries to the head will be described further below. The teeth were natural and in good condition. Injuries to the neck will be described further below. The chest was unremarkable. No evidence of injury of the ribs or the sternum was evident externally. The abdomen was flat with no surgical scars noted. The fingernails were short and intact. The extremities showed no evidence of fractures, lacerations or deformities. No tattoos or needle tracks were observed. The external genitalia were those of a normal prepubescent child. The posterior torso was without note. There was no evidence of significant recent injury.

EVIDENCE OF THERAPY

Evidence of emergency resuscitation attempts consisted of an endotracheal tube and an intravenous line present in the left antecubital fossa.

EVIDENCE OF INJURY

MULTIPLE INJURIES

HEAD:

There was a large, slightly indented abrasion with prominent red-brown parchment-like changes, measuring 5-3/4"x2-1/2" and toto extending from the right cheek inferiorly across the midline of the chin, the under surface of the mandible and up to the left cheek. The abrasion had a geographic configuration and extended 3-1/4" right of the anterior midline and 2-1/2" left of the anterior midline and also extended along the under surface of the angle of the jaw from 1/2" (right side of mandible) to 1" (left side of mandible). The tip of the nose had a similar 3/4"x3/8" slightly indented abrasion. There were oval abrasions overlying the left and right supraorbital ridges (eyebrows) measuring 2-1/4"x5/8" and 1-1/2"x3/8" respectively. The surface of these abrasions had a tan-brown, dry appearance. There was a 3/16"x1/4" horizontally oriented elliptical abrasion on the lateral aspect of the right orbit. The outer surface of the upper right ear had a small 1/4"x1/8" abrasion. There was a 1/4"x1/16" roughly rectangular abrasion on the inferior aspect of the right ear lobe. A large 2x3/8" confluent abrasion was

NAME: [REDACTED]	POST MORTEM EXAMINATION REPORT OFFICE OF THE CHIEF MEDICAL EXAMINER STATE OF	PAGE 3
CASE NUMBER: [REDACTED]		

HEAD: (cont.)

present on the back surface of the lateral aspect of the right ear. Both the upper and lower lips had diffuse superficial abrasions and marked drying changes. There was a 1/4"x1/8" laceration of the mucosal surface of the lower lip on the midline. Both the upper and lower frena were torn.

Internal examination revealed diffuse subgaleal hemorrhage about the frontal and anterior parietal regions. The skull demonstrated two areas of slightly depressed skull fractures; one was centered about the left lateral frontal bone and the other involving the mid right frontal bone. These depressed fracture areas produced a comminuted fracture consisting of multiple intersecting linear fractures about the left side of the frontal bone, a diastatic fracture of the coronal suture, extending to a comminuted fracture of the right lateral aspect of the frontal bone. There were several fracture lines radiating posteriorly across the right side of the frontal bone extending from the right lateral aspect of the coronal suture. The brain demonstrated focal subarachnoid hemorrhage and cortical contusions (see neuropathology consultation).

NECK:

Internal examination revealed extensive hemorrhage into the soft tissues and musculature of the anterior cervical spine, extending from C1 to C5. There was also extensive hemorrhage into the soft tissue around the atlanto-occipital joint and into the epidural space of the cervical spinal canal.

There was subluxation of the atlanto-occipital joint. There was also a slightly displaced fracture of cervical vertebral body C4. Two faint spinal cord contusions were visible in the area of C3 and C5 (see neuropathology consultation).

CHEST:

Internal examination revealed a 1/2"x3/8" contusion on the anterior surface of the right side of the thymus. There was also a 1x1/2" contusion on the anterior-inferior aspect of the front of the upper lobe of the right lung. There were multifocal pericardial petechiae on the surface of the heart.

INTERNAL EXAMINATION:

BODY CAVITIES:

The body was opened by the usual thoraco-abdominal incision and the chest plate was removed. No adhesions or abnormal collections of fluid were present in any of the body cavities. All body organs were present in the normal anatomical position. The subcutaneous fat layer of the abdominal wall was 1/2" thick. There was no internal evidence of penetrating injury to the thoraco-abdominal region.

NAME: [REDACTED]	POST MORTEM EXAMINATION REPORT OFFICE OF THE CHIEF MEDICAL EXAMINER STATE OF	PAGE 4
CASE NUMBER: [REDACTED]		

HEAD: (CENTRAL NERVOUS SYSTEM)

Injuries to the head were previously noted. The scalp was reflected. The calvarium of the skull was removed. The dura mater and falx cerebri were intact. There was no epidural or subdural hemorrhage present. The leptomeninges were thin and delicate and showed areas of subarachnoid hemorrhage as described above. The cerebral hemispheres were symmetrical. The structures at the base of the brain, including cranial nerves and blood vessels were intact. The brain weighed 1100 grams (see neuropathology consultation).

NECK:

Injuries to the neck were previously noted. Examination of the soft tissues of the neck, including strap muscles, thyroid gland and large vessels, revealed no other abnormalities. The hyoid bone and larynx were intact.

CARDIOVASCULAR SYSTEM:

The pericardial surfaces demonstrated petechiae as described above. The pericardial surfaces were otherwise smooth, glistening and unremarkable; the pericardial sac was free of significant fluid or adhesions. The coronary arteries arose normally, followed the usual distribution and were widely patent, without evidence of significant atherosclerosis or thrombosis. The chambers and valves exhibited the usual size-position relationship and were unremarkable. The myocardium was dark red-brown, firm and unremarkable; the atrial and ventricular septa were intact. The aorta and its major branches arose normally, followed the usual course and were widely patent, free of significant atherosclerosis and other abnormality. The vena cava and its major tributaries returned to the heart in the usual distribution and were free of thrombi. The heart weighed 80 grams.

RESPIRATORY SYSTEM:

The upper airway contained a small amount of pink-tan mucoid material; the mucosal surfaces were smooth, yellow-tan and unremarkable. Injuries to the right lung were described above. The pleural surfaces were otherwise smooth, glistening and unremarkable bilaterally. The pulmonary parenchyma was red-purple, exuding slight to moderate amounts of blood and frothy fluid; no non-traumatic lesions were noted. The pulmonary arteries were normally developed, patent and without thrombus or embolus. The right lung weighed 120 grams; the left 90 grams.

LIVER & BILIARY SYSTEM:

The hepatic capsule was smooth, glistening and intact, covering dark red-brown, moderately congested parenchyma with no focal lesions noted. The gallbladder contained 5 ml. of yellow-green, mucoid bile; the mucosa was velvety and unremarkable. The extrahepatic biliary tree was patent, without evidence of calculi. The liver weighed 410 grams.

ALIMENTARY TRACT:

The tongue exhibited no evidence of recent injury. The esophagus was lined by gray-white, smooth mucosa. The gastric mucosa was arranged in the usual rugal folds and the lumen contained 23 ml. of tan-brown paste-like fluid. The small and large bowel were unremarkable. The pancreas had a normal pink-tan lobulated appearance and the ducts were clear. The appendix was

NAME: [REDACTED]	POST MORTEM EXAMINATION REPORT OFFICE OF THE CHIEF MEDICAL EXAMINER STATE OF	PAGE 5
CASE NUMBER: [REDACTED]		

unremarkable.

GENITOURINARY SYSTEM:

The renal capsules were smooth and thin, semi-transparent and stripped with ease from the underlying smooth, red-brown cortical surface. The cortices were slightly congested and well-delineated from the medullary pyramids, which were red-purple to tan and unremarkable. The calyces, pelves and ureters were unremarkable. The urinary bladder contained 10 ml. of clear yellow urine; the mucosa was gray-tan and smooth. The uterus, fallopian tubes, ovaries and vagina were unremarkable. The right kidney weighed 30 grams; the left 40 grams.

RETICULOENDOTHELIAL SYSTEM:

The spleen had a smooth, intact capsule covering red-purple, moderately firm parenchyma; the lymphoid follicles were unremarkable. The regional lymph nodes appeared normal. The spleen weighed 30 grams.

ENDOCRINE SYSTEM:

The pituitary, thyroid and adrenal glands were unremarkable.

MUSCULOSKELETAL SYSTEM:

Muscle development was normal. No non-traumatic bone or joint abnormalities were noted.

NAME: [REDACTED]	POST MORTEM EXAMINATION REPORT OFFICE OF THE CHIEF MEDICAL EXAMINER STATE OF	PAGE 6
CASE NUMBER: [REDACTED]		

PATHOLOGIC DIAGNOSES

I. Multiple injuries

A. Head:

1. Multiple abrasions about the lower half of the face, nose, forehead, and right ear
2. Superficially abraded lips with focal lacerations to lower lip and torn upper and lower frena
3. Conjunctivae petechiae
4. Depressed comminuted fractures involving the left lateral frontal bone and the mid right frontal bone, associated with a diastatic fracture of the coronal suture and several linear fractures extending posteriorly on the right parietal bone
5. Extensive subgaleal hemorrhage
6. Extensive subarachnoid hemorrhage
7. Cortical contusions of brain

B. Neck:

1. Hemorrhage into the soft tissues surrounding the anterior cervical vertebral column
2. Subluxation of the atlanto-occipital joint
3. Fracture of vertebral body C4
4. Contusion of spinal cord on the region of C3 and C5

C. Chest:

1. Focal contusion of the thymus
2. Focal contusion of right lung
3. Pericardial petechiae

NAME: [REDACTED]	POST MORTEM EXAMINATION REPORT OFFICE OF THE CHIEF MEDICAL EXAMINER STATE OF	PAGE 7
CASE NUMBER: [REDACTED]		

OPINION:

This 3 year old, black female, [REDACTED] died of head and neck injuries sustained as an alleged passenger of an automobile involved in an auto vs fixed object collision. Reportedly, she was seated on the lap of an unbelted right front passenger when the collision occurred. The pattern of superficial injuries to the face, is consistent with injuries sustained during airbag deployment. The manner of death is ACCIDENT.

[REDACTED]
[REDACTED]
[REDACTED]
A [REDACTED]
Date signed: [REDACTED]

BLOOD (HEART): Alcohol - negative
Drug test - negative

DO NOT DUPLICATE

[REDACTED]

NEUROPATHOLOGY REPORT

NAME: [REDACTED]

CASE #: [REDACTED]

DATE OF DEATH: [REDACTED] 1996

MEDICAL EXAMINER: [REDACTED]

MICROSCOPIC EXAMINATION of [REDACTED] **1996**

Microscopic sections demonstrate acute hemorrhagic contusion of the cortex and white matter of the left frontal gyrus. Cortical hemorrhagic contusions are also present in left hippocampus-entorhinal cortex. There are very subtle petechiae in the gray matter of the cervical cord. No subarachnoid or subdural hemorrhage is noted in this region.

vbl

NEUROPATHOLOGY REPORT

NAME: [REDACTED] CASE #: [REDACTED]
SEX: Female AGE: 3 years, 6 months
RACE: Black MEDICAL EXAMINER: [REDACTED]
DATE OF DEATH: [REDACTED] 1996

MACROSCOPIC EXAMINATION of [REDACTED] 1996

Brain Weight: 1230 grams

Dura: Free of hemorrhage.

Brain: The cerebral hemispheres are symmetrical and the gyral pattern is normally developed. The leptomeninges show fresh subarachnoid hemorrhage over the fronto-parietal regions bilaterally. There is also a slight amount of hemorrhage over the left and right temporal lobes. At the base, there is bilateral grooving and hemorrhagic discoloration of the temporal lobe unci. The blood vessels, cranial nerves, brainstem, and cerebellum are unremarkable.

On coronal sections, the cerebral hemispheres are symmetrical. Cortical gray matter is of normal thickness and shows moderate vascular congestion. Hemorrhagic discoloration consistent with contusion is noted throughout the left middle and inferior frontal gyri and also associated with the grooving of both temporal lobe unci. White matter is well-myelinated. Prominent vascular congestion is noted in the white matter of the frontal lobes and anterior corpus callosum. The basal ganglia are normal. The hippocampal formations are symmetrical. The brainstem and cerebellum are within normal limits.

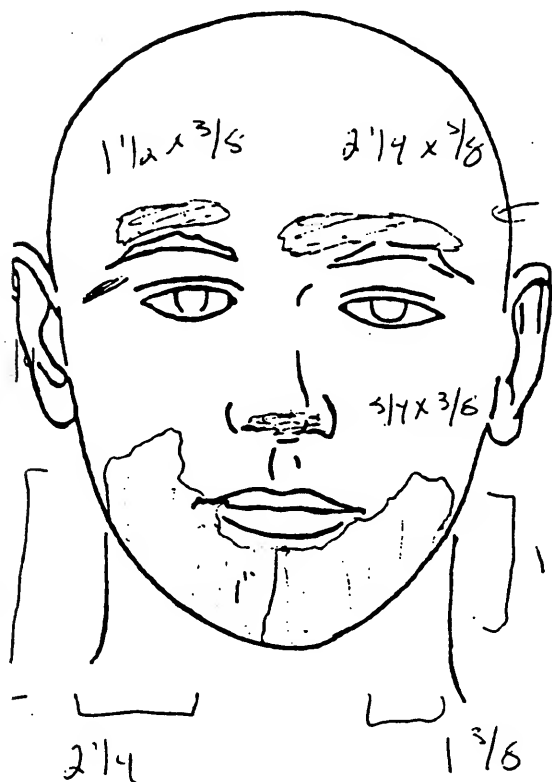
Spinal Cord: The entire cord, its roots, and the dura are available for examination. The dura shows scant fresh hemorrhage at the cervical-thoracic level. There is no subdural hemorrhage. Roots are unremarkable. Horizontal sections through the cord reveal no abnormality.

Summary:

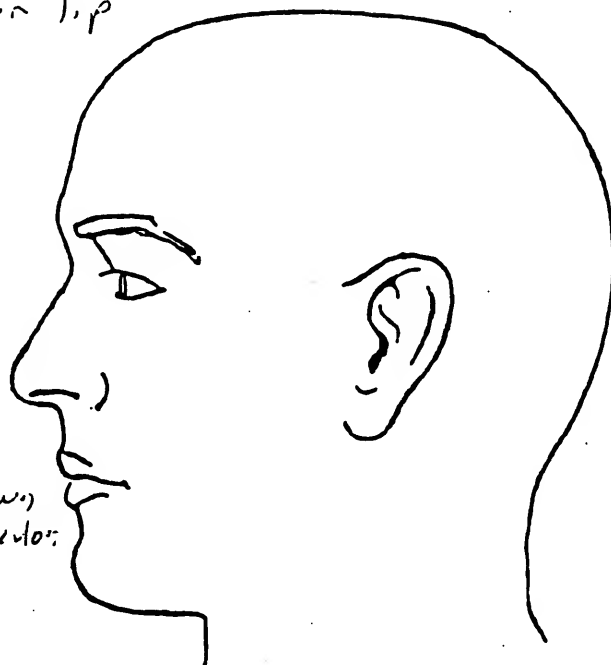
1. Acute subarachnoid hemorrhage, multifocal, traumatic.
2. Cortical contusions of the left frontal lobe and temporal lobe unci.
3. Epidural hemorrhage of the cervical-thoracic cord, mild.

NAME _____ DATE _____ CASE # _____

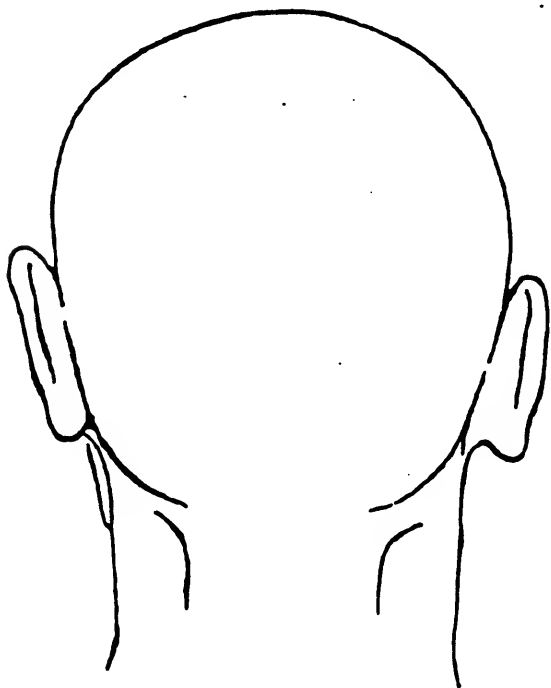
marked drying of
lips - both (V) & (L)
frenulum torn c
1/4 x 1/8 lac. of
midline lower lip



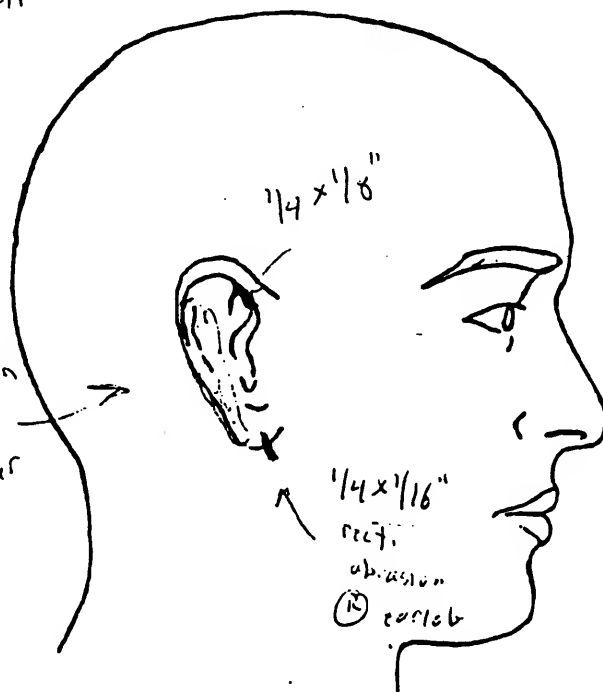
marked
sup
abrasion
c red-brown
drying discolor
5 3/4 x



both lips sup
abraded.



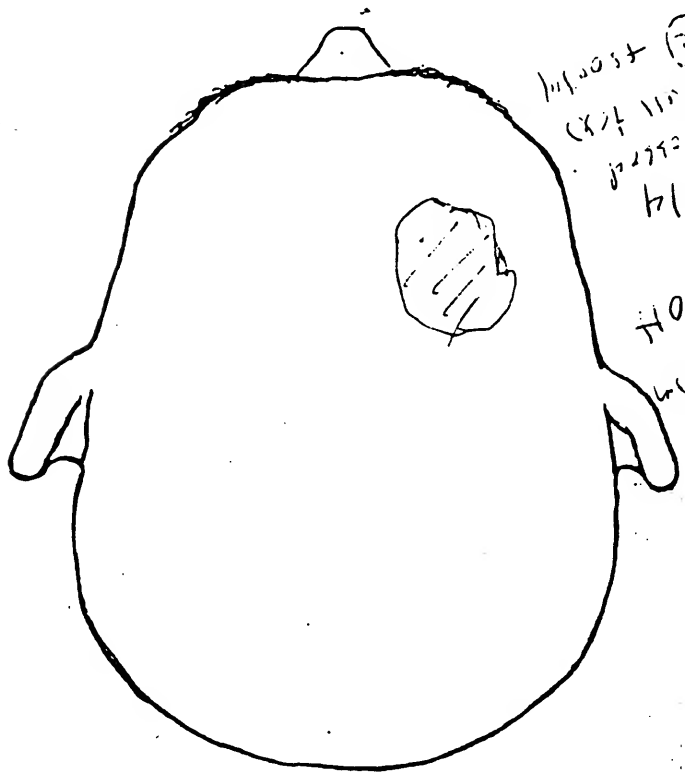
2 x 3/8
deep abrasion
on post.
lat. (R) ear



Name _____ Autopsy No. _____

Color _____ Age _____ Sex _____ Date _____

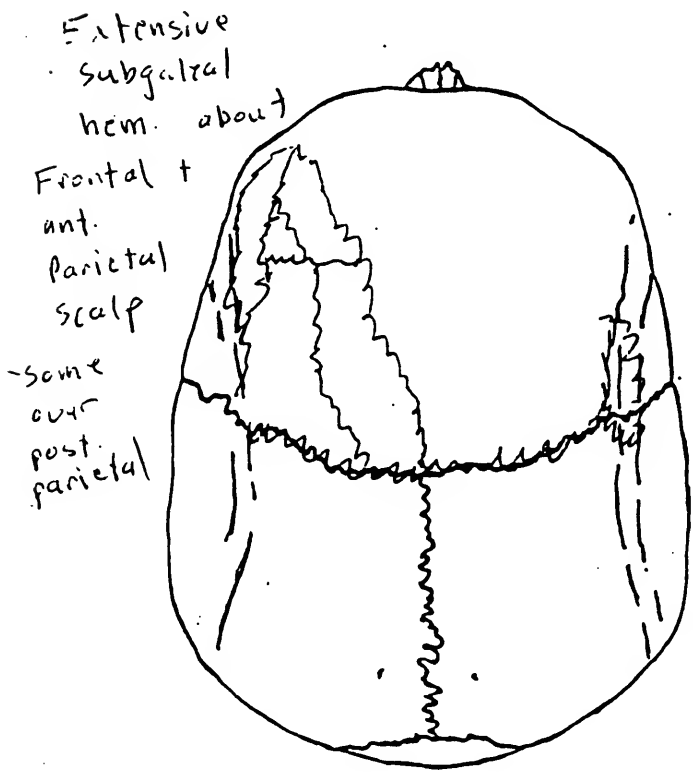
BEST AVAILABLE



②
1 1/2" x 1 1/4"
depressed
skull (X)
1" B704
② 1 1/2" x 1 1/4"



abrasion extends
from 1/2" (midline) to
1" ② side undersurface
of jaw.



Extensive
subgaleal
hem. about
Frontal +
ant.
Parietal
scalp
-some
over
post.
parietal

Head, surface and skeletal anatomy, lateral view.

Name _____ Autopsy No. _____

Age _____ Race _____ Sex _____ Date / / BEST AVAILABLE

